



TABLE OF CONTENTS

	<u>Page</u>
1.0 Introduction.....	1
2.0 Surface Soil Sampling.....	2
2.1 Sample Locations.....	2
2.1.1 Allied Oil, Byproducts, Sinter Plant Ore Storage, and Raw Materials Storage Areas (RFI Report Recommendation).....	2
2.1.2 Areas of Viable Habitat (RFI Report Recommendation and Comment No. 30)	2
2.1.3 Hillside Area Background Samples (RFI Report Recommendation and Comment No. 37).....	3
2.1.4 Hillside Area: Coal Tar Derivative Accumulation Area (Not Previously Sampled)	3
2.1.5 Murphy Consolidated and Provenzano Trucking (Phase I ESA Comment Nos. 1, 2, and 3).....	4
2.2 Sample Collection Procedures	4
2.3 Laboratory Analysis.....	5
3.0 Soil Borings	6
3.1 BOF Residuals, Plant Debris, and Former Ash Screening Areas (Comment Nos. 2 and 36)	6
3.2 Hillside Area: Coal Tar Derivative Accumulation Area (Not Previously Sampled)	6
4.0 Well Installations and Groundwater Sampling.....	8
4.1 Well Locations	8
4.1.1 Downgradient of Borings SBE7 (Comment No. 6).....	8
4.1.2 Downgradient of Borings SBC1 (Comment No. 7).....	8
4.1.3 Downgradient of Byproducts Area (RFI Report Recommendation and Comment No. 40).....	9
4.2 Well Installation Procedures	9
4.3 Sample Collection Procedures	10
4.4 Laboratory Analysis.....	11
5.0 Sediment Sampling.....	12
5.1 Sample Locations.....	12
5.1.1 Upstream Background Samples in Mahan's Run (Comment No. 20).....	12
5.1.2 Downstream Samples in Mahan's Run (RFI Report Recommendation)....	12
5.2 Sample Collection Procedures	13
5.3 Laboratory Analysis.....	14



Table of Contents (Continued)
Page ii

6.0	Geophysical Survey to Identify USTs	15
7.0	Schedule.....	16

FIGURES

- Figure 1 – Proposed Sample Locations
- Figure 2 – Habitat Map
- Figure 3 – Schedule



1.0 INTRODUCTION

The initial phase of the RCRA Facility Investigation (RFI) for the Severstal Wheeling, Inc. (formerly known as Wheeling Pittsburgh Steel Corporation) Facility was performed by Civil & Environmental Consultants, Inc. (CEC) in 2004-2005, and an RFI Report was submitted to U.S. Environmental Protection Agency (U.S. EPA) in September 2005. The RFI Report identified several data gaps and recommended additional investigation activities to fill those gaps. U.S. EPA completed its review of the RFI Report and issued a comment letter on July 8, 2009. The comment letter identified several additional data gaps. Severstal prepared responses to the July 8 comments, which were submitted to U.S. EPA on September 4, 2009. This document, which is an attachment to the Severstal response letter, provides a work plan for filling the data gaps identified in the 2005 RFI Report and U.S. EPA comments.

The additional investigation activities will include: surface soil sampling and analysis, soil borings to better define subsurface conditions, monitoring well installations followed by groundwater sampling and analysis, sediment sampling and analysis, and a geophysical survey to identify underground storage tanks. The subsequent sections of this work plan are arranged accordingly. Note that this work plan provides only a general description of sampling objectives, locations, and procedures. All sampling and analysis activities will follow the detailed procedures specified in the RFI Work Plan for the Facility that was approved by U.S. EPA on August 14, 2003.



2.0 SURFACE SOIL SAMPLING

2.1 SAMPLE LOCATIONS

Surface soil samples will be collected in several areas of the facility based on the RFI Report recommendations and U.S. EPA comments as described below. Sample locations are shown on Figure 1.


2.1.1 Allied Oil, Byproducts, Sinter Plant Ore Storage, and Raw Materials Storage Areas (RFI Report Recommendation)

An insufficient number of samples was collected in these areas to adequately characterize risk during the initial phase of the RFI. Additional samples will be collected to provide better coverage of each area as follows:

- Six samples (SSA1 through SSA6) in the Allied Oil Area;
- Ten samples (SSB1 through SSB10) in the Byproducts Area;
- Seven samples (SSF4 through SSF10) in the Sinter Plant Ore Storage Area; and
- Eight samples (SSG3 through SSG10) in the Raw Materials Storage Area.

2.1.2 Areas of Viable Habitat (RFI Report Recommendation and Comment No. 30)

All of the surface soil samples collected during the initial phase of the RFI and used in the screening level ecological risk assessment were collected from industrialized areas without viable habitat. Additional samples will be collected in areas of viable habitat located adjacent to the main plant area to provide data for a more realistic evaluation of exposures to ecological receptors, including:

- 
- Nine samples (SSA7, SSD1, SSD2, SSF11, SSF12, and SSG12 through SSG15) in the riparian forest zone along the Ohio River shoreline; and
 - Two samples (SSG16 and SSG17) in the small wetland located at the southern end of the Facility adjacent to the Raw Materials Storage Area.

In addition to being shown on Figure 1, these sample locations are shown on the attached Habitat Map (Figure 2).

2.1.3 Hillside Area Background Samples (RFI Report Recommendation and Comment No. 37)

Five samples were collected upslope of the Hillside Disposal Area during the initial phase of the RFI to establish background conditions; however, two of these samples (SSH1 and SSH2) contained elevated concentrations of several PAHs. Five additional samples (SSH6 through SSH10) will be collected to better delineate PAH concentrations around SSH1 and SSH2 and to further evaluate background conditions.

2.1.4 Hillside Area: Coal Tar Derivative Accumulation Area (Not Previously Sampled)

After the completion of the field investigation activities for the initial phase of the RFI, a small area of accumulated coal tar derivative was identified in the ephemeral stream adjacent to the Hillside Disposal Area. One soil sample (SSH1.1) will be collected in the channel upgradient of this area and two samples (SSH12 and SSH13) will be collected in the channel downgradient. In addition, four surface soil samples (SSH14 through SSH17) will be collected in the wooded area around the perimeter of the tar accumulation area.

2.1.5 Murphy Consolidated and Provenzano Trucking (Phase I ESA Comment Nos. 1, 2, and 3)

One area on the Murphy Consolidated leased property and two areas on the Provenzano Trucking leased property were identified during the Phase I Environmental Assessments to contain waste materials and stained soils. One surface soil sample will be collected from each of these areas (SSG11 on Murphy, and SSH18 and SSH19 on Provenzano) for analysis prior to the removal of the waste materials and excavation of contaminated soil. The analytical results for these samples will be used to identify contaminants associated with each area and for waste disposal purposes, but will not be included in the risk assessment.

2.2 SAMPLE COLLECTION PROCEDURES

Surface soil samples will be collected in accordance with the procedures used during the initial phase of the RFI and as outlined in 1.8.2.9 and 2.4.3.13 of the RFI Workplan. Specifically, samples will be collected with the use of a hand trowel and stainless steel sampling bowl. The hand trowel will be used to expose soil to a depth of approximately 6 inches and the sample for Volatile Organic Compounds (VOC) analysis will be collected from the base of the 6-inch excavation. Soil from the 0 to 1-foot interval will then be extracted with the hand trowel and homogenized in the stainless steel bowl before filling sample containers for the other required analyses.

Where soil conditions permit (fine-grained cohesive soils), samples for VOC analysis will be collected in accordance with U.S. EPA Method 5035. Where soil conditions are not conducive for 5035 sampling methods (slag or other hard materials that restrict the penetration of the syringe or Encore sampler), soil samples for VOC analysis will be transferred using the hand trowel directly into 125-ml glass containers with Teflon®-lined lids filled completely to minimize sample headspace. All sample containers will be placed directly in iced coolers and maintained at approximately 4°C for shipment or delivery to the laboratory.



Prior to initiating soil sampling activities at each location, all reusable sampling equipment will be decontaminated using procedures specified in Section 2.4.4 and Appendix E (Standard Operating Procedures) of the RFI Workplan.

Surface soil sample locations will be surveyed in accordance with the procedures outlined in Sections 1.8.2.6 and 2.4.3.10 of the RFI Workplan.

2.3 LABORATORY ANALYSIS

All surface soil samples will be analyzed for the list of parameters specified in the RFI Workplan, including:

- Target Compound List VOCs;
- Target Compound List Semi-Volatile Organic Compounds (SVOCs);
- Target Analyte List Metals; and
- Cyanide, ammonia, acetophenone, aniline, acetonitrile, pyridine, bis(2-chloroisopropyl) ether, butyl benzyl phthalate, and n-nitroso-di-n-propylamine.

Laboratory analytical methods will also be consistent with those specified in the RFI Workplan.



3.0 SOIL BORINGS

3.1 BOF RESIDUALS, PLANT DEBRIS, AND FORMER ASH SCREENING AREAS (COMMENT NOS. 2 AND 36)

Coal tar residuals were identified in the subsurface in the former Ash Screening Area during the initial phase of the RFI, but the extent was not completely defined. Coal tar residuals also reportedly exist in the Plant Debris Disposal Area and BOF Residual Storage Area, but no borings were advanced in these locations during the initial phase of the RFI. Twenty-four additional borings (SBE16 through SBE39) will be installed in these areas to better delineate the extent of coal tar residuals in the subsurface. Proposed boring locations are shown on Figure 1.

Each boring will be advanced using hollow-stem auger drilling methods with continuous split spoon sampling through fill materials (including industrial residues and soil) and approximately 5 feet into underlying natural alluvial deposits. The purpose of the borings is to delineate the type and extent of fill materials (coal tar residuals in particular) in these areas. Split spoon soil samples collected from each boring will be logged in the field for gross composition, texture, color, relative degree of saturation, and signs of contamination. Each sample will also be field-screened for VOCs by placing a representative portion in a polyethylene ziplock bag and set aside for subsequent photoionization detector (PID) headspace screening. Sample descriptions and PID readings will be recorded on a boring log for each well that will be included in the RFI report. Soil samples will not be submitted to the laboratory for analysis for environmental or geotechnical parameters.

3.2 HILLSIDE AREA: COAL TAR DERIVATIVE ACCUMULATION AREA (NOT PREVIOUSLY SAMPLED)

Three borings (SBH39, SBH40, and SBH41) will be advanced within the coal tar derivative accumulation area described in Section 2.1 above. Three additional borings (SBH42, SBH43,



and SB44) will be installed around the perimeter of the area. These borings, which are intended to determine the extent and thickness of tar in the area, will be advanced using the methodology described above for the BOF Residuals and Plant Debris Disposal areas.

Boring locations will be surveyed in accordance with the procedures outlined in Sections 1.8.2.6 and 2.4.3.10 of the RFI Workplan.

4.0 WELL INSTALLATIONS AND GROUNDWATER SAMPLING

4.1 WELL LOCATIONS

Groundwater monitoring wells will be installed in several areas of the facility based on the RFI Report recommendations and U.S. EPA comments as described below. Proposed well locations are shown on Figure 1.

4.1.1 Downgradient of Borings SBE7 (Comment No. 6)

A groundwater sample collected from boring SBE7 (located in the Former Ash Screening Area) during the initial phase of the RFI detected benzene at 2700 µg/l as well as elevated concentrations of other aromatic hydrocarbons. These elevated concentrations are believed to be associated with the existence of coal tar residuals identified beneath much of the former Ash Screening Area. A groundwater sample was also collected from boring SBE5, which is located in the perched aquifer immediately downgradient of boring SBE7, and no aromatic hydrocarbons were detected. However, no deeper monitoring wells exist in that area to evaluate whether groundwater contamination has migrated in the alluvial aquifer. Therefore, a set of nested monitoring wells (MWE1I and MWE1D) will be installed in upper and lower portions of the alluvial aquifer to fill this data gap.

4.1.2 Downgradient of Borings SBC1 (Comment No. 7)

A soil sample collected from boring SBC1 during the initial phase of the RFI contained VOC (benzene, toluene, and xylene) concentrations above the Soil Screening Levels (SSLs) for migration to groundwater. A groundwater sample collected from boring SBC1 also detected these constituents, as well as several PAHs, at concentrations above the groundwater screening levels. There are no groundwater monitoring wells located directly downgradient of boring SBC1 (between existing downgradient wells MWC1P/I and MWC2P/I). Therefore, a set of

nested monitoring wells will be installed in the perched aquifer (MWC5P) and upper alluvial aquifer (MWC5I) to fill this data gap.

4.1.3 Downgradient of Byproducts Area (RFI Report Recommendation and Comment No. 40)

Free product and significant contaminant concentrations were identified soil and shallow (perched) groundwater in the former light oil refining area of the Byproducts Plant during the initial phase of the RFI. However, no groundwater monitoring wells exist downgradient of this area to evaluate potential migration of free product or dissolved phase contaminants in groundwater. A set of three nested monitoring wells (MWD4P, MWD4I, and MWD4D) will be installed downgradient of the former light oil refining area evaluate the potential for contaminant migration to the Ohio River.

4.2 WELL INSTALLATION PROCEDURES

Monitoring wells will be installed, developed, and surveyed in accordance with the procedures outlined in the RFI Workplan (Sections 1.8.2.2, 1.8.2.6, and 1.8.2.8 of the Project Management Plan and Sections 2.4.3.3, 2.4.3.10, and 2.4.3.12 of the Data Collection Quality Assurance Plan). The only exception is that 10-inch casing will not be installed into the base of the perched aquifer prior to drilling for the installation of alluvial aquifer wells MWE1I and MWE1D, since the water sample collected from nearby boring SBE5 during the initial phase of the RFI did not contain detectable concentrations of VOCs or SVOCs. Split spoon soil samples collected during well drilling will be logged in the field for gross composition, texture, color, relative degree of saturation, and signs of contamination. Each sample will also be field-screened for VOCs by placing a representative portion in a polyethylene ziplock bag and setting aside for subsequent PID headspace screening. Sample descriptions and PID readings will be recorded on a boring log for each well that will be included in the RFI report. Soil samples will not be submitted to the laboratory for analysis of environmental or geotechnical parameters.

The new monitoring wells will be surveyed in accordance with the procedures outlined in Sections 1.8.2.6 and 2.4.3.10 of the RFI Workplan.

4.3 SAMPLE COLLECTION PROCEDURES

One round of groundwater samples will be collected from each of the new monitoring wells described above, as well as from each monitoring well that was sampled in November-December 2004 during the initial phase of the RFI. Groundwater samples will be collected using the same methods used during the initial phase of the RFI and as specified in Sections 1.8.2.10 and 2.4.3.14 of the RFI Workplan.

In general, samples will be collected with a portable bladder pump utilizing using low flow purging and sampling techniques. Perched monitoring wells with little water volume and/or slow recharge will be sampled using dedicated (or disposable) hand bailers. Based on the sampling event conducted during the initial phase of the RFI, only a few wells will require sampling using a hand bailer.

Prior to sample collection, the water level will be measured and recorded, and the well evaluated for the presence of non-aqueous phase liquids using an electronic dual interface probe. Following these initial readings, purging of wells to be sampled with the bladder pump will be initiated at an approximate rate of 100 to 800 ml/min based on known well recharge characteristics and to maintain less than 0.3 feet of drawdown, when practical. The pump discharge will be connected directly to a flow-through cell for measuring specific conductance, pH, temperature, turbidity, dissolved oxygen, oxidation reduction potential (redox), and turbidity. Purging of each well will continue until the field water quality readings stabilized (± 10 percent for conductance, temperature, dissolved oxygen, and redox; and ± 0.1 units for pH). For wells sampled using hand bailers, purge water will be poured directly into the cell for measurement of field parameters. Following the stabilization of field parameters, the sample will be collected into appropriate sample containers directly from the flow through cell discharge

line or from the hand bailer. Sample containers will be placed directly in an iced cooler and maintained at approximately 4°C for shipment or delivery to the laboratory.

Prior to initiating sampling activities at each location, all reusable sampling equipment will be thoroughly decontaminated using procedures outlined in Section 2.4.4 and Appendix E (Standard Operating Procedures) of the RFI Workplan.

4.4 LABORATORY ANALYSIS

All samples will be submitted to Pace Laboratory for analysis for the following list of parameters as specified in the RFI Workplan:

- Target Compound List VOCs;
- Target Compound List SVOCs;
- Target Analyte List Metals; and
- Cyanide, ammonia, acetophenone, aniline, acetonitrile, pyridine, bis(2-chloroisopropyl) ether, butyl benzyl phthalate, and n-nitroso-di-n-propylamine.

Laboratory analytical methods will also be consistent with those specified in the RFI Workplan.



5.0 SEDIMENT SAMPLING

Sediment samples will be collected at several locations in Mahan's Run based on the RFI Report recommendations and U.S. EPA comments as described below. Sample locations are shown on Figure 1.

5.1 SAMPLE LOCATIONS

5.1.1 Upstream Background Samples in Mahan's Run (Comment No. 20)

U.S. EPA Comment No. 20 questioned why sediment samples SDH06S through SDH10S in Mahan's Run are considered background when this segment of Mahan's Run is located adjacent to the PGT Trucking and former Murphy Consolidated Leased properties. The results of the Phase I assessments of these properties, as well as results of sampling near the former underground storage tanks (USTs) on the Murphy Consolidated property do not indicate any sources of contamination that would impact Mahan's Run. Nevertheless, three additional sediment samples (SDH11S, SDH12S, and SDH13S) will be collected in Mahan's Run upstream of these properties to further evaluate background conditions.

5.1.2 Downstream Samples in Mahan's Run (RFI Report Recommendation)

The September 2005 RFI Report recommended that additional work be performed to further evaluate potential exposures to ecological receptors in Mahan's Run. A review of the sampling results from the initial phase of the RFI shows that concentrations of several constituents, including several metals and PAHs, are higher in samples SDA01S and SDA02S than in samples collected further upstream. Samples SDA01S and SDA02S are located downstream of the culvert that conveys Mahan's Run beneath Route 2, while the remaining samples are located upstream of the culvert. Four additional sediment samples (SDA03S through SDA06S) will be



collected in the stream segment below the culvert to supplement previous samples SDA01S and SDA02S and aid in ecological exposure evaluation and remedial decision making.

5.2 SAMPLE COLLECTION PROCEDURES

Sediment samples will be collected using the same procedures that were used during the initial phase of the RFI. Samples will be collected in a downstream to upstream direction to eliminate the effect of stream disturbance on subsequent sample locations. Samples will be collected with a disposable 2-inch plastic bailer cut open on each end for easy sample extraction. The plastic bailer will be used as a coring device by advancing the open bailer approximately 6 inches into the stream sediment. A stainless steel spoon will be held over the bottom of the core to prevent sample loss upon extraction of the sample.

The sample aliquot for VOC analysis will be collected first by directly placing sediment from the bottom of the core into a 125-ml pre-labeled glass container. The VOC sample jars will be filled completely to prevent open head space and capped tightly with a Teflon®-lined lid. The remaining sediment will be homogenized in a stainless steel bowl before filling sample containers for the other required analyses using the stainless steel spoon. Sample bottles will be placed in an iced cooler and maintained at approximately 4°C for delivery/shipment to the laboratory. Samples for analysis of physical parameters will be collected in ziplock bags.

To prevent cross contamination, a new portion of disposable plastic bailer will be cut for use as a sediment coring device at each location. The stainless steel spoon and bowl will be thoroughly decontaminated using a multi-step procedure in accordance with the decontamination procedures outlined in Section 2.4.4 and Appendix E (Standard Operating Procedures) of the RFI Workplan.

Sediment sample locations will be surveyed in accordance with the procedures outlined in Sections 1.8.2.6 and 2.4.3.10 of the RFI Workplan.



5.3 LABORATORY ANALYSIS

Sediment samples will be submitted to Pace Laboratory for analysis for the following list of parameters as specified in the RFI Workplan:

- Target Compound List VOCs;
- Target Compound List SVOCs;
- Target Analyte List Metals;
- Cyanide, ammonia, acetophenone, aniline, acetonitrile, pyridine, bis(2-chloroisopropyl) ether, butyl benzyl phthalate, and n-nitroso-di-n-propylamine; and
- Total Organic Carbon (TOC).

Samples collected for physical analysis will be shipped to Geotechnics in Pittsburgh, Pennsylvania for analysis of the following list of parameters as specified in the RFI Workplan:

- Grain size;
- Moisture content; and
- Percent solids.

Laboratory analytical methods will be consistent with those specified in the RFI Workplan.



6.0 GEOPHYSICAL SURVEY TO IDENTIFY USTs

Based on the results of the Phase I Assessment of the Provenzano Trucking leased property, one 5,000-gallon diesel UST and one 5,000-gallon gasoline UST reportedly remain beneath the northern portion of the site. A geophysical survey will be performed in an attempt to identify the UST locations. The geophysical survey will initially include a time-domain electromagnetic (EM) survey of the entire area. Selective ground penetrating radar (GPR) profiles will then be collected over identified large EM anomalies. The combined information from the EM survey and GPR profiles will be used to evaluate the existence and locations of the USTs. If the UST locations are identified, excavation will be performed to unearth and positively identify the USTs. If the existence of the USTs is confirmed, they will be removed and confirmatory soil samples will be collected in accordance with the West Virginia UST Regulations (Regulations). Any corrective action that may be required based on the results of the confirmatory sampling will also be performed in accordance with the Regulations.



7.0 SCHEDULE

The proposed schedule for the activities presented in this work plan is presented on Figure 3.